

A REVISION OF THE OSMYLID SUBFAMILIES
STENOSMYLINAE AND KALOSMYLINAE
(NEUROPTERA)

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(With eight plates and twenty-eight text-figures.)

THE Osmylidae, as a whole, have attracted the attention of many neuropterists, notably Hagen, McLachlan and Krüger. Many of them are large-winged insects, with well-marked pattern and densely reticulated wings. These features have led to the description of many forms, but unfortunately little attention has been paid to genital structure in either sex, and it is probable that many synonyms have been created, especially in the Osmylinae and Spilosmylinae. Krüger, in his revision of the family in 1913-1914, based his classification almost entirely on venation and placed much reliance on rather minute venational characters. In some species at least, further material has shown these characters to be variable, even differing on opposite sides of the same insect. In spite of this, Krüger's work forms a very useful basis for our classification. Nevertheless in the Osmylidae the venation, being complicated, is by no means stable, and should be used with some reserve as a basis for determination.

The recent acquisition by the British Museum of the historic collection of Neuroptera built up by McLachlan, and also the types and many of the specimens of Neuroptera from the Tillyard collection, has enabled me to make a more careful study of the members of the two subfamilies Stenosmylinae and Kalosmylinae. These subfamilies form a convenient unit for study, inasmuch as the genera (with the exception of *Isostenosmylus*) are restricted in their distribution to Australia (excluding N. Queensland), Tasmania, New Zealand and Chile. The exception is also South American, but it has a more northerly range, covering Ecuador, Southern Brazil and Peru. Further collecting in Chile and Patagonia may well extend the range of *Isostenosmylus* southward and will probably discover further species of these subfamilies. The major part of the Australian Osmylidae belongs to these two subfamilies, the exceptions being *Eidoporisimus pulchellus* Esben-Petersen, *Porismus strigatus* (Burm.), and one or two Spilosmyline species of Papuan origin which have reached North Queensland.

The structure of the male genitalia confirms the opinion that the Osmylidae are among the more primitive members of the true Neuroptera. In most Neuroptera the tenth sternite in the male has been retracted within the abdomen and has become much modified from the normal U-shaped sternite to a saddle or arch-like structure. In these subfamilies are found examples of a tenth sternite which is still external and covered with hairs (*Stenosmylus*, *Oedosmylus*), as well as intermediate forms leading to the more or less internal structure of *Isostenosmylus*. In many Osmylidae there is found in the male a pair of eversible, finger-like scent-glands, opening on the dorsum between the eighth and ninth abdominal tergites. These are present in the Kalosmylinae, but appear to be absent in the Stenosmylinae, in which the eighth and ninth tergites are fused.

The value of the male genitalia as a means of specific identification varies in different genera. In *Stenosmylus*, *Oedosmylus* and *Isostenosmylus* these structures are very helpful, particularly in the latter genus, in which the wings are rather uniform. In *Kempynus* and *Euosmylus* they are of little use; in fact, the male genitalia of *Euosmylus* are practically indistinguishable from those of some species of *Kempynus*. In the female the form of the eighth sternite and the reflexed lobe hinged to its apex offer good characters. Another female structure which is of assistance is the form of the accessory glands. In the Stenosmylinae they take the form of a pair of slender, serpentine tubes, each terminating in a small oval sac. In the Kalosmylinae this sac is more elongate, generally constricted about midway and differs in form in the various species.

To examine the genitalia properly it is necessary to remove the apex of the abdomen and to clear it by boiling in caustic potash solution. After neutralizing the alkali with acetic acid, the preparation is stained in carbol-fuchsin and mounted in canada balsam in the usual manner. Staining is necessary to reveal the shape of the basal parts of the tenth sternite. These structures gradually thin down to a very fine edge which, if unstained, becomes invisible in canada balsam. All the drawings in this paper have been made from cleared specimens in clove oil, before mounting. The various parts, shown separately, are not necessarily drawn to the same scale, as this would mean an undue reduction of some drawings.

The photographs of the wings have been made primarily with the object of showing the pattern and in some instances this has been slightly emphasized, with the result that venation in some areas is a little obscured. It was found that illuminating the wings from behind only, whilst giving an excellent rendering of the venation, tended to lose the finer shades of the pattern. Pale markings formed by areas in which the veins were whitish were lost entirely, the veins, being in silhouette, reproducing as black. Frontal illumination was therefore used, with a white background some distance behind the wings. The only disadvantage of this method is the slight tendency to reflection of the illuminant from certain areas, unless the wing be completely flattened between glasses.

STENOSMYLINAE Krüger.

Stenosmylinae Krüger, 1913, *Stettin. ent. Ztg.*, 74 : 23, 105-115, 214.

Anterior wing with one cross-vein in subcostal area, medius forked far distant from base. Posterior wing without a sinuous cross-vein from the base of the medius to the radial sector. (In some genera, *Stenosmylus*, *Oedosmylus*, there may occur a feeble or incomplete sinuous cross-vein between the medius and the stem of the radius.) Cu_2 long. In the male apparently no eversible scent-glands opening between the eighth and ninth tergites.

KEY TO GENERA.

1. Wings brownish or black, with conspicuous opaque, white, apical, patches
Euporismus Tillyard.
- Wings without such apical patches 2.
2. In anterior wing, first cross-vein to M beyond the basal corneous spot
arises from the stem of Rs; M forks near the margin of the wing 4.
- In anterior wing, first cross-vein to M beyond the basal corneous spot
arises from the first branch of Rs; M forks nearer the centre of the wing
a few cells beyond the second corneous spot 3.

3. In anterior wing of ♀, part of Cu_1 and Cu_2 or IA thickened; Australian, Tasmanian species *Oedosmylus* Krüger.
In anterior wing of ♀, these veins normal; S. American species
Isostenosmylus Krüger.
4. A_2 in anterior wing extends to level of origin of Rs *Stenosmylus* McLachlan.
This vein extends to level of origin of first branch of Rs.
Stenolysmus gen. nov.

STENOSMYLUS McLachlan.

(Pl. I.)

Stenosmylus McLachlan, 1867, *J. Linn. Soc. Lond. (Zool.)*, 9 : 267.1868, Brauer, *Verh. Zool.-Bot. Ges. Wien*, 18 : 398; 1913, Krüger, *Stettin. ent. Ztg.*, 74 : 106-112.Genotype (fixed by McLachlan, 1867): *Osmylus tenuis* Walker, 1853.

In anterior wing, first cross-vein to the medius beyond the basal corneous spot arises from the stem of Rs; A_2 extends to level of origin of Rs. ♂. Tenth sternite largely external, hairy, varying in shape according to species. ♀. Hinged lobe of eighth sternite slender, bifid at apex; valves of ninth segment not heavily fringed.

DISTRIBUTION: Australia.

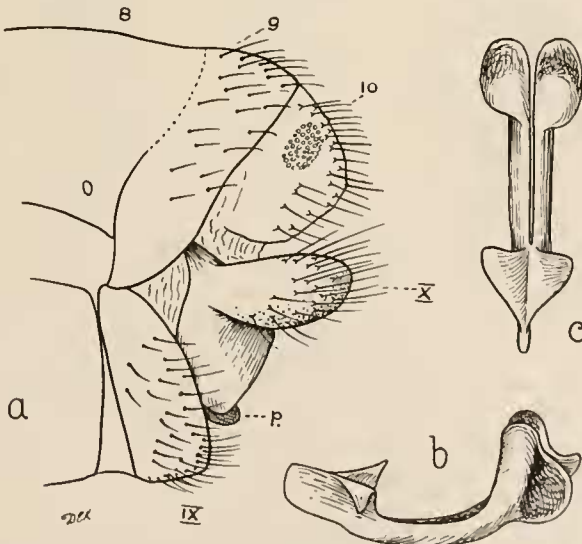
Stenosmylus tenuis (Walker).

(Pl. I, fig. 2; text-figs. 1, 2.)

Osmylus tenuis Walker, 1853, *List Neur. Ins. Brit. Mus.*, 2 : 234; Hagen, 1866, *Stettin. ent. Ztg.*, 27 : 455.*Stenosmylus tenuis* (Walker), McLachlan, 1867, *J. Linn. Soc. Lond. (Zool.)*, 9 : 267; Krüger, 1914, *Stettin. ent. Ztg.*, 75 : 57, 114-117.

Walker's description of the general appearance is adequate, and the only amplification I propose to give is the description of the ♂ and ♀ genital appendages.

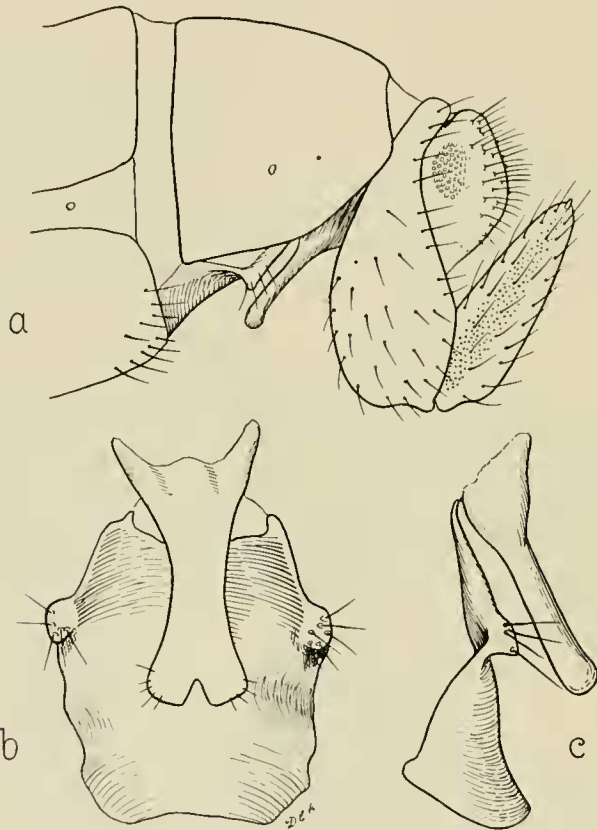
♂. Eighth and ninth tergites fused dorsally; ninth sternite short. Anal



TEXT-FIG. 1.—*Stenosmylus tenuis* (Walker), ♂ type. *a*, apex of abdomen, lateral; *b*, parameres, lateral; *c*, the same, dorsal.

plates from the side broadly rounded, with a large group of trichobothria. Tenth sternite external, triangular from above, from the side projecting in a stout hairy finger. Its lower basal margin extended downwards in a pair of thin chitinized plates. Between these plates lie the parameres, slender, curved rods, flattened and fused basally. The fused portion bears on its upper surface a pair of triangular flaps. Apices of the parameres dilated.

♀. Seventh sternite simple, apical margin not produced. Eighth tergite a little shorter than its depth; sternite broad, convex basally and concave apically.



TEXT-FIG. 2.—*Stenosmylus tenuis* (Walker), ♀ paratype. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral; *c*, the same, lateral.

About mid-way the lateral margins are each produced downwards in a short, triangular tooth, carrying a number of setae. To the apex of the sternite is hinged a slender process, rather shorter than the sternite, directed basally. This process, which has a somewhat dilated base, is from the side parallel-sided; from beneath the apex is expanded and has a small V-shaped excision at the centre of its margin. Ninth tergite short dorsally, side lobes pyriform. Valves of the ninth segment straight, lanceolate, apex with a minute style. Anal plates rounded, group of trichobothria large and ovate.

From Walker's series of three I select as type a male from Van Diemen's Land. The other specimen from this locality is a female, as also is the example

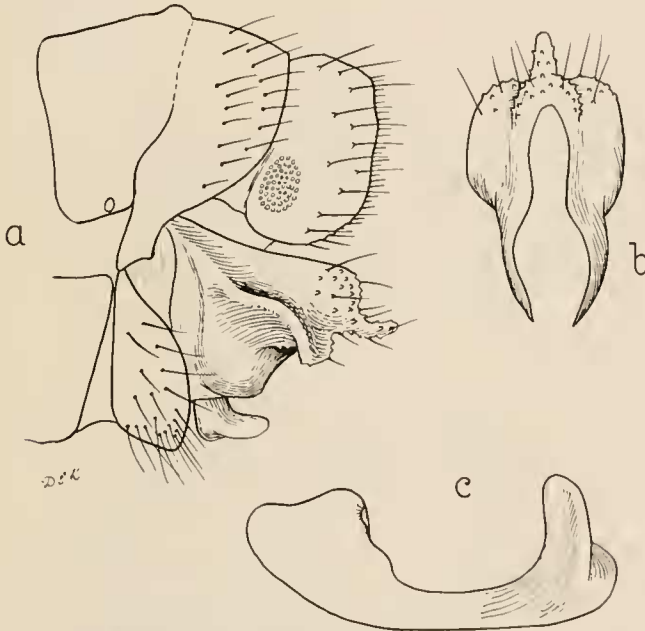
from Adelaide. In addition to these localities I have also seen examples from E. Australia and New South Wales.

***Stenosmylus stenopterus* McLachlan.**

(Pl. I, fig. 1; text-figs. 3, 4.)

Stenosmylus stenopterus McLachlan, 1867, *J. Linn. Soc. Lond. (Zool.)*, 9: 267; Krüger, 1914, *Stettin. ent. Ztg.*, 75: 57, 114-117.

McLachlan's description of the female type is, as usual, very good and requires modifying only in respect of his account of the genitalia. The

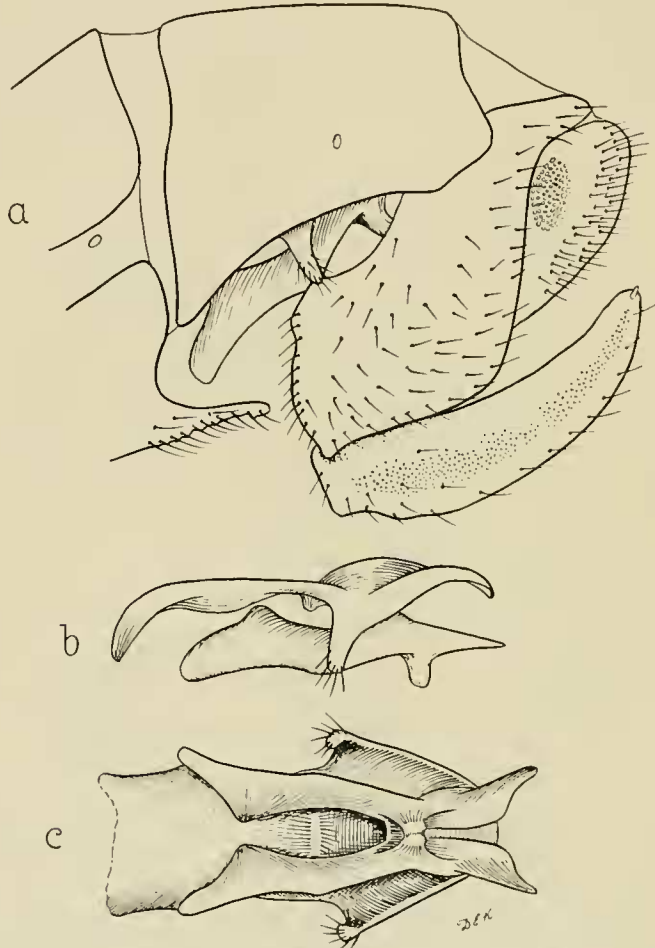


TEXT-FIG. 3.—*Stenosmylus stenopterus* McL. ♂. *a*, apex of abdomen, lateral; *b*, tenth sternite, dorsal; *c*, parameres, lateral.

"long straight spine dilated towards the apex" is at the *apex* of the *seventh*, not the base of the sixth, segment. The eighth sternite has a slender process arising from each lateral margin, fringed with hairs. The "deeply bifid semi-transparent valve" arises from the eighth and not the seventh sternite; it is bifid at both ends. The "sabre-shaped flattened yellow borer," the valves of the ninth segment, bear at their apices very small styles.

♂. Eighth and ninth tergites fused dorsally. Anal plates fused dorsally, quadrate from the side, angles rounded, the group of trichobothria set low, rather ovate. Tenth sternite large and broad, centre of apical margin globose, extreme apex produced in a slender curved finger. On either side of the centre and at a lower level is a rounded lobe, which from the side is seen extending basally as a sinuous ridge. Lower margins produced downwards, plate-like, apices incurved under the central process. Parameres resembling those of *S. tenuis*, apices less dilated, and no triangular expansions at the base.

Of the three examples in the type series, one is now very defective, and appears to have been repaired with an abdomen of a female *S. tenuis*. Another, with the same register number, 58-124, also lacks an abdomen, and I have therefore selected as type the female from S. Australia (Bakewell), 59-24. It is from



TEXT-FIG. 4.—*Stenosmylus stenopterus* McL., ♀ type. *a*, apex of abdomen, lateral; *b*, eighth sternite, lateral; *c*, the same, ventral.

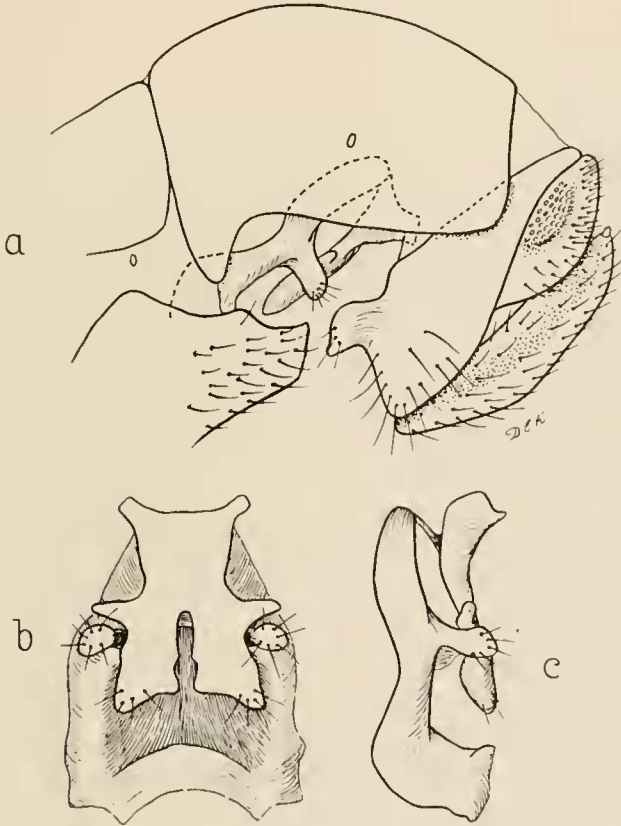
this example that the figures of female genitalia have been drawn. The distribution of the species, as exemplified by British Museum material, covers S. Australia, Victoria and N.S. Wales.

Krüger has placed this species in the synonymy of *S. tenuis*. I feel sure that he cannot have seen a true *tenuis*, for apart from the genital differences, *S. stenopterus* has a noticeably narrower anterior wing, its apex more acute. The pattern of the wing is variable, but I have not seen a *stenopterus* without an apical streak, nor a *tenuis* with anything approaching a definite apical streak.

Stenosmylus turneri sp. n.

(Pl. I, fig. 3; text-fig. 5.)

♀. Head and palpi shining brownish, antennae dull luteous. Pronotum elongate, about as wide as the distance between the eyes, shining brownish, the margins fringed with strong setae. Many of these setae arise from strongly elevated bases, giving the lateral margins a serrate appearance. This feature is



TEXT-FIG. 5.—*Stenosmylus turneri* sp. n., ♀ type. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral; *c*, the same, lateral.

to be seen in other species of the genus. Thorax and abdomen brownish, less shining, with scattered yellowish hairs. Legs pale brownish, irregularly marked with dark brown. Wings hyaline, practically immaculate (two or three brown specks on the gradate series and one on the fork of Cu_1 in anterior wing), stigma brownish, venation mainly brownish. Wings shaped much as in *S. tenuis*, but without the prominent hair bases on the cross-veins, which are a feature of *tenuis* and *stenopterus*.

Genitalia of the pattern of *stenopterus*; seventh sternite produced at centre of its apical margin. Eighth sternite shorter and broader, the hinged, bifid appendage also much shorter, the forks not more than half the length of the

appendage. Lateral margins about mid-way with slender tooth-like projections. Base not bifid, but widely excised. Ninth tergite with a blunt process at its lower basal angle. Valves of ninth segment sabre-like, with a minute apical style. Anal plate short, deep, rounded, group of trichobothria elongate-oval.

Length of anterior wing 18 mm., posterior wing 16 mm.

Type ♀, S.E. QUEENSLAND, Tambourine Mts., 2-9.iv.35 (R. E. Turner), in the British Museum.

STENOLYSMUS gen. nov.

(Pl. I, fig. 4.)

Genotype: *Nymphes extraneus* Walker.

The species for which this genus has been erected had a somewhat restless time during the first few years of its entomological life. Walker placed it in *Nymphes*, which it indeed resembles in the form of its wings, but the more slender antennae and the absence of any but a marginal branch to Cu_1 bar it from the Nymphidae. Hagen, in 1866, placed it in the genus *Osmylus*, then a rather composite genus. The following year McLachlan, when revising Walker's list of Neuroptera in the British Museum, placed it doubtfully in the genus *Myiodactylus*, but at the same time pointed out that it possessed "ventral valves and a borer analogous to those described . . . under *Stenosmylus stenopterus*." I suspect that it was its more robust form and rather pallid appearance which deterred him from including it in *Stenosmylus*. Whatever his reasons, I think he was entirely justified, as both male and female genitalia show good characters to separate it from *Stenosmylus*, although it is undoubtedly allied to that genus. The chief difference in wing venation is in the length of A_2 in the anterior wing. This vein is much longer in the present genus, about half as long as A_1 , and extends to about the level of the first branch of Rs. In *Stenosmylus* A_2 is only about one-quarter as long as A_1 , reaching only to the level of the origin of Rs.

♂. Eighth and ninth tergites and anal plates partially fused, anal plates also fused together dorsally. Tenth sternite large, more modified than in *Stenosmylus*, the projecting hairy lobe smaller. Parameres shorter and stouter.

♀. Seventh sternite with its apical margin produced in a broad plate, with a slightly excised apex. Process hinged to apex of eighth sternite broad, truncate, with two apical pockets or depressions. Eighth tergite longer than deep. Group of trichobothria on anal plate small and nearly circular. Valves of ninth segment elongate, somewhat twisted along their axes; apical margin fringed with stout hooked setae; apex of valve with a small but definite style.

It is perhaps scarcely necessary to point out that the name *Stenolysmus* is an anagram of *Stenosmylus*, and does not imply any special relationship with *Lysmus* Navás.

DISTRIBUTION: Australia.

Stenolysmus extraneus (Walker).

(Pl. I, fig. 4; text-figs. 6, 7.)

Nymphes extraneus Walker, 1853, *List. Neur. Ins. Brit. Mus.*, 2: 230.

Osmylus extraneus (Walker), Hagen, 1866, *Stettin. ent. Ztg.*, 27: 453.

? *Myiodactylus extraneus* (Walker), McLachlan, 1867, *J. Linn. Soc. Lond. (Zool.)*, 9: 262.

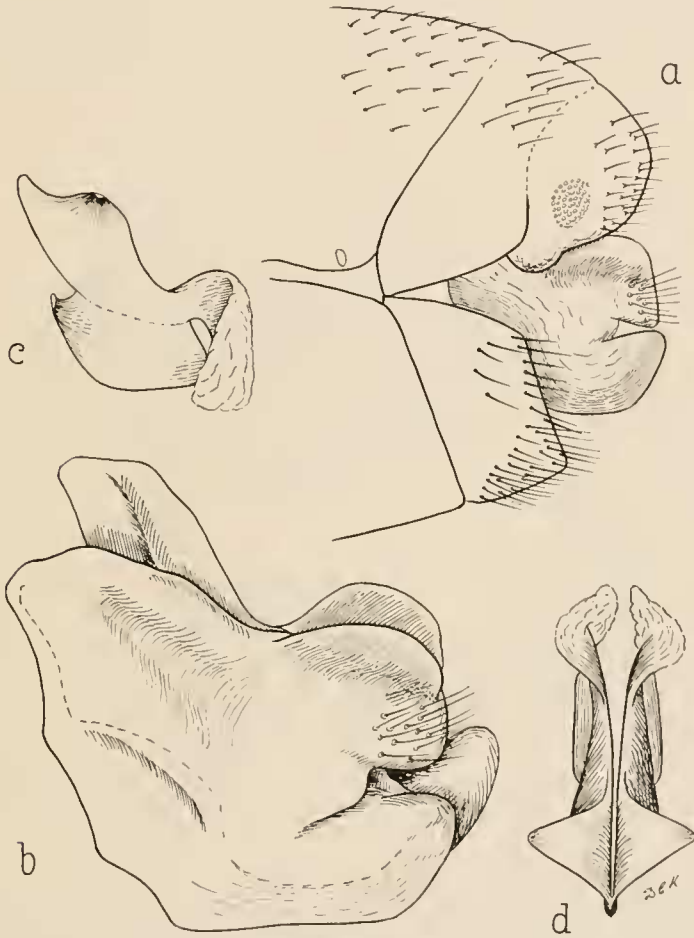
Stenosmylus extraneus (Walker), Banks, 1913, *Trans. Amer. ent. Soc.*, 39: 215.

Stenosmylus australiensis Esben-Petersen, 1917, *Vidensk. Medd. naturh. Foren. Kbh.*, 68: 1

(**Syn. nov.**).

Walker's type is a female without locality, but I have no doubt that a female of *S. australiensis* E.-P. from the Tillyard collection is conspecific. The description of the male genitalia is from a specimen in McLachlan's collection, determined by myself.

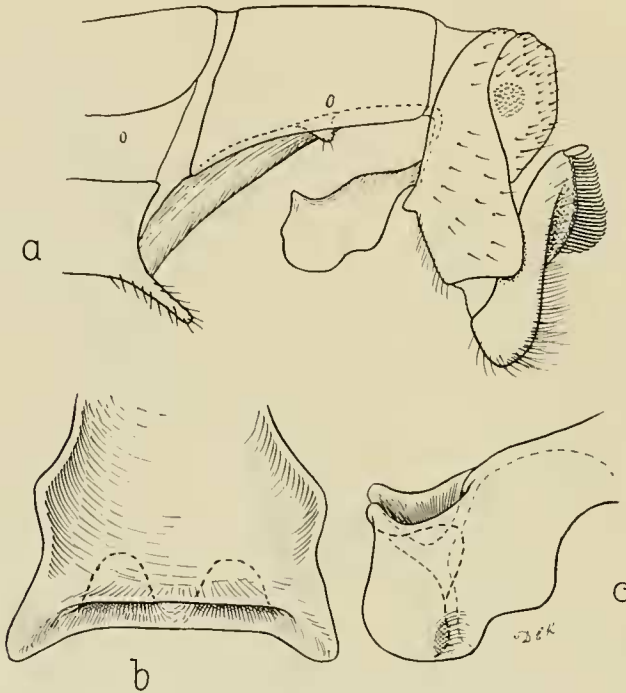
♂. Eighth and ninth tergites and anal plates fused dorsally, the anal plates forming a hood. The latter from the side are rounded, a little flattened apically,



TEXT-FIG. 6.—*Stenolysmus extraneus* (Walker), ♂. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, parameres, lateral; *d*, the same, dorsal.

and with a small rounded lobe at the lower basal angle. Tenth sternite large, arched, partly external. Dorsal margin produced in a small setigerous lobe, rounded from above, its upper surface elevated in a pair of convergent ridges. Lower margins of tenth sternite produced tailward, curving upward towards the apical lobe in a pair of somewhat membranous, flattened lobes. Parameres short, deep, fused at their extreme bases. Lower margins with thin keel-like flanges. Apices membranous, directed downwards and inwards. Near the base on the upper surface are two horizontal, triangular wings.

♀. Seventh sternite produced in a broad plate, apical margin with a wide shallow excision. Eighth sternite long, lateral margins each with a small triangular process. To the apical margin is hinged a broad plate directed basally. There is a deep concavity on its ventral surface near the base, a smaller depression on the upper surface at the apex and two pockets in the apical surface. The apex itself is rather widely excised. Ninth tergite short, deep, lower margin not very dilated. Valves of the ninth segment elongate, somewhat twisted, outer apical margin fringed with stout, hooked, golden setae. Style small, elongate. Anal plates short, rather trapezoidal, trichobothria-group small, circular.



TEXT-FIG. 7.—*Stenolysmus extraneus* (Walker), ♀. *a*, apex of abdomen, lateral; *b*, apex of lobe of eighth sternite, ventral; *c*, the same, lateral.

Length of anterior wing: ♂ 22–26 mm., ♀ 23–28 mm.

„ posterior wing: ♂ 20–24 mm., ♀ 21–26 mm.

DISTRIBUTION: Australia. This species appears to be scarce in collections, and I have seen only five examples, of which only one has a locality more definite than Australia, namely, New South Wales, Beecroft, nr. Sydney, 19.iv.17.

OEDOSMYLUS Krüger.

(Pl. II.)

Oedosmylus Krüger, 1913, *Stettin. ent. Ztg.*, 74: 106–112.

Genotype: *Oed. tasmaniensis* Krüger.

Wings rather elongate, otherwise much as in *Isostenosmylus*. In the female anterior wing the apical part of Cu_1 and either part of Cu_2 and M_{3+4} , or else IA,

are thickened, as are also some of the associated cross-veins. Tenth sternite in male large, hairy, external.

DISTRIBUTION : Australia, Tasmania.

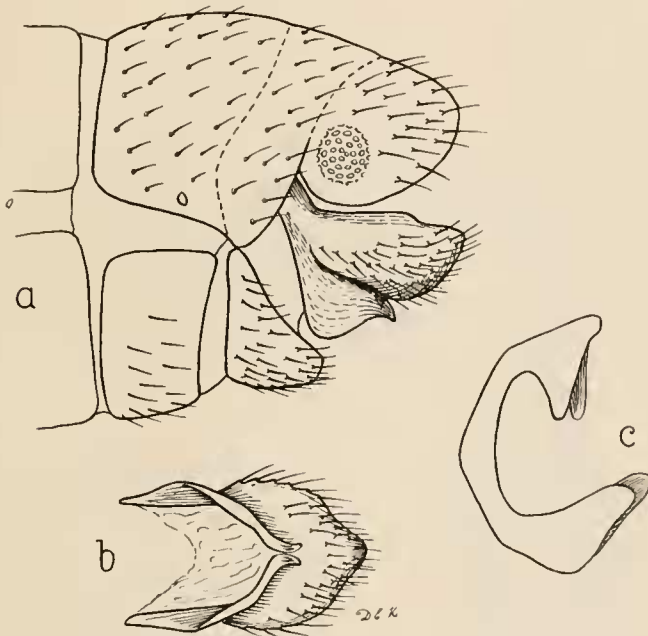
Oedosmylus pallidus (McLachlan).

(Pl. II, fig. 1 ; text-figs. 8, 9.)

Osmylus (?) *pallidus* McLachlan, 1863, *J. Ent.*, 2 : 113, pl. 6, fig. 2 ; Hagen, 1866, *Stettin. ent. Ztg.*, 27 : 455.

Stenosmylus pallidus (McLachlan), 1870, *Ent. mon. Mag.*, 6 : 195.

Oedosmylus pallidus (McLachlan), Krüger, 1913, *Stettin. ent. Ztg.*, 74 : 216.



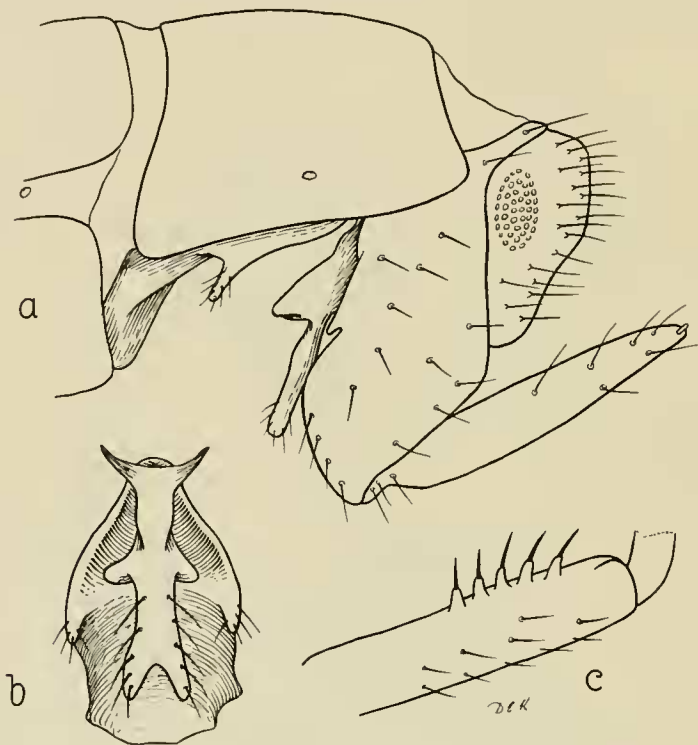
TEXT-FIG. 8.—*Oedosmylus pallidus* (McL.), ♂. *a*, apex of abdomen, lateral ; *b*, tenth sternite, ventral ; *c*, parameres, lateral.

McLachlan's type is a female, and to his description may be added that in the anterior wing, the apical halves of Cu_1 and Cu_2 , the cross-veins between these in the same area, the basal portion of M_{3+4} and some of the cross-veins between M and Cu_1 are dilated to about twice their normal width. The artist seems to have tried to portray this in pl. vi, fig. 2, but the dilatation of Cu_1 has been carried too far basally. The female genitalia follow the stenomyline pattern. Seventh sternite scarcely produced, eighth from the side with a slender, basally directed finger arising from the centre of the lateral margins. Posteriorly the sternite tapers to a rounded apex. Hinged lobe slender, apex bifurcate, from the side with a pair of triangular projections on its upper surface about midway, directed somewhat outwards. Ninth tergite very narrow dorsally, lower portion much expanded and with a narrow excision on its basal margin. Valves long and narrow, with a small apical style. Anal plates pyriform from the side, broad end uppermost.

Anterior coxa with a row of five or six finger-like teeth on its anterior surface near apex, each tooth carrying a socketed seta.

With this female I have associated three males from Hornsby and Hampton, N.S.W. They have the same pallid, almost immaculate wings, the anterior pointed and slightly falcate, hind margin lightly bordered with brownish.

♂ Genitalia: eighth and ninth tergites and anal plates fused, the latter forming a hood with slightly excised apex. Ninth sternite produced, apical margin rounded, centre flattened. Tenth sternite forming a broad hairy lobe,



TEXT-FIG. 9.—*Oedosmylus pallidus* (McL.), ♀ type. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral; *c*, anterior coxa, lateral.

apex rounded, sides sinuous from beneath. Lower margins of the sternite produced downwards to form plates with approximated, acute, hooked apices. Parameres slender, fused basally, bases dilated in triangular wings, apices rounded, not very dilated.

DISTRIBUTION: "Australia"; New South Wales, Hampton, i. 18, Hornsby, 12. iii. 18, R. J. Tillyard.

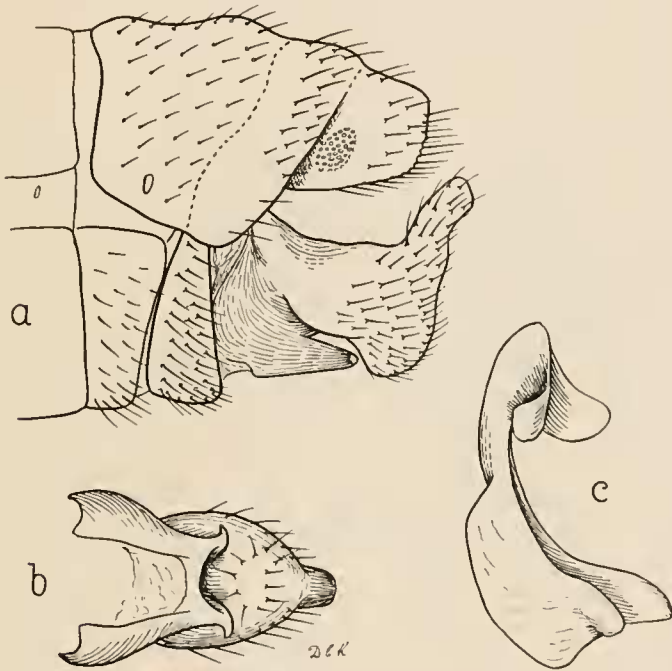
Oedosmylus tasmaniensis Krüger.

(Pl. II, fig. 2; text-figs. 10, 11.)

Oedosmylus tasmaniensis Krüger, 1913, *Stettin. ent. Ztg.*, **74**: 26, 27, 94 (not described), 106–112, 216; 1914, **75**: 117–119 (full description).
Stenosmylus tasmaniensis (Krüger), Tillyard, 1926, *Ins. Austr. N.Z.*: 320.

Anterior wings elongate, 3.3–3.4 times as long as broad, posterior margin rounded, not falcate, apex not pointed. Anterior coxa of female with numerous short, socketed setae scattered over the anterior surface, not set on a row of prominent serrations as in *O. pallidus*.

♂ Genitalia: eighth and ninth tergites completely fused, anal plates forming an excised hood, fused at its centre to the margin of ninth tergite. Ninth sternite short, only slightly produced. Tenth sternite prominent, apex hairy, from the side dilated, upper angle produced upward in a truncate horn, lower angle rounded; from beneath it is parabolic, with the horn projecting beyond the

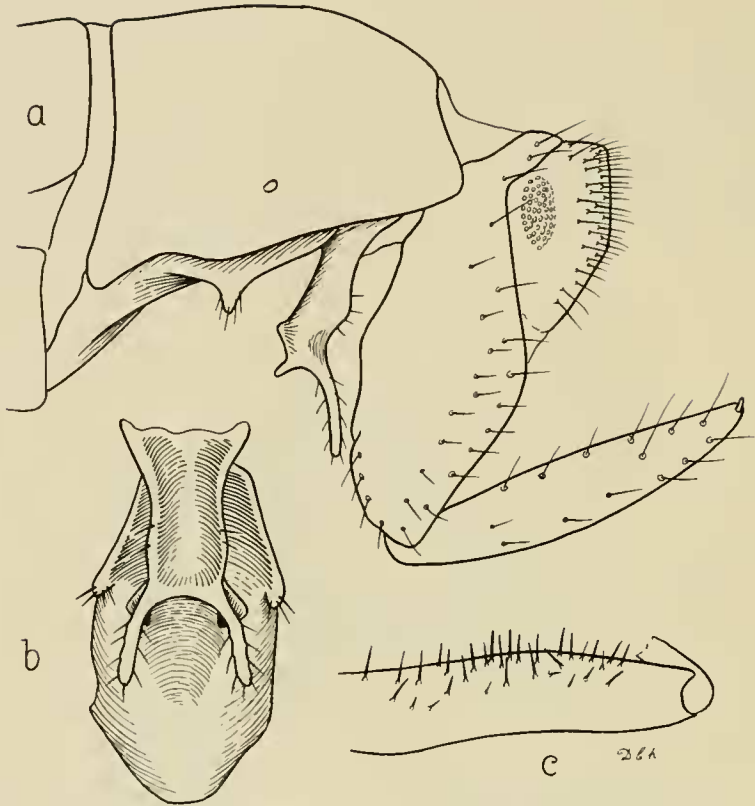


TEXT-FIG. 10.—*Oedosmylus tasmaniensis* Krüger, ♂. *a*, apex of abdomen, lateral; *b*, tenth sternite, ventral; *c*, parameres, lateral.

apex. Lower margins produced downward, forming plates with outcurved, hooked apices. Parameres slender, fused basally, less curved than in *pallidus*. Apical half with a membranous expansion on lower surface, apices rounded and divergent.

♀. Seventh sternite scarcely produced, eighth elongate, apical margin truncate, process of lateral margin short and stout. Hinged lobe stouter than in *pallidus*, lower apical margin terminating in a pair of slender fingers with a deep U-shaped excision between them. Upper apical angles short, plate-like, dilated from beneath. The stem of the lobe is concave beneath. Ninth tergite narrow dorsally, much expanded in its lower portion, no excision on its basal margin; valves narrow and elongate. Anal plates rhomboidal, upper angle truncate.

DISTRIBUTION: Tasmania: Hobart, George's Bay, 1.i.85; Windermere (? label indistinct), 23.xii.87, 22.i.88; Cygnet, 27.xii.16.



TEXT-FIG. 11.—*Oedosmylus tasmaniensis* Krüger, ♀. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral; *c*, anterior coxa, lateral.

***Oedosmylus latipennis* sp. n.**

(Pl. II, fig. 3.)

This species may best be distinguished from *tasmaniensis* by the shape of the anterior wings. In *latipennis* they are definitely broader (three times as long as broad), and the posterior margin is angled, not evenly rounded. The posterior wings are also relatively broader. The pattern is much the same, but in the female, Cu_1 and $1A$ are less swollen. I have been unable to discover any real difference in the male genital structure of the two species; unfortunately, both female paratypes of *latipennis* lack the abdomen. Should further material reveal no difference in this sex also, it will perhaps be necessary to reduce *latipennis* to the rank of a subspecies. For the present, bearing in mind the fact that the distribution of *latipennis* encroaches on that of *tasmaniensis*, I prefer to keep them as distinct species.

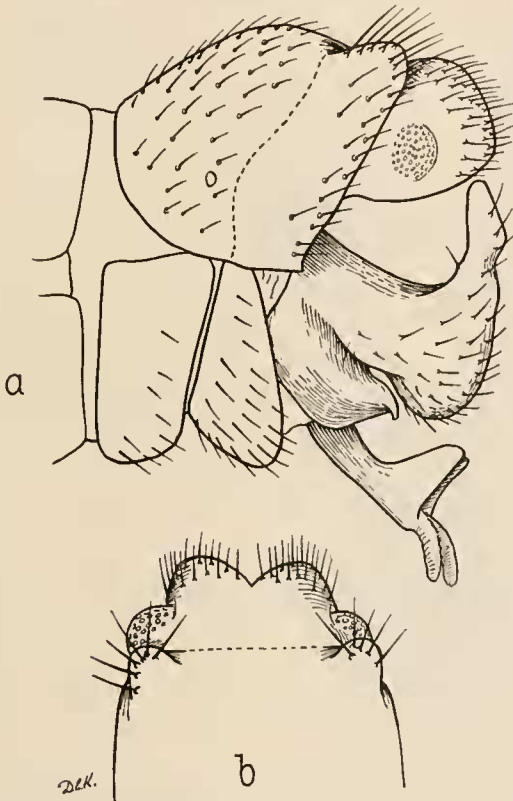
Length of anterior wing: ♂ 19–20 mm., ♀ 19 mm.

Type ♂, paratype ♀, N.S. WALES: Mt. Kosciusko, 4500 ft., 21.i.85; paratype ♂, Mt. Kosciusko, 5000 ft., 22.i.1930, *R. J. Tillyard*; paratype ♀, Mt. Wilson, 19.xi.1921, *R. J. Tillyard*; paratype ♂, TASMANIA: Triabunna, 25.xii.1915, *G. H. Hardy*, in British Museum.

Oedosmylus montanus sp. n.

(Pl. II, fig. 4; text-figs. 12, 13.)

Allied to *O. tasmaniensis* rather than *O. pallidus*, but differing in the form of the wings and the genitalia. Anterior wing more elongate than in *O. latipennis*, posterior margin angled. Dilated veins of ♀ (Cu_1 and IA) much as in *tasmaniensis*. Anterior coxa of female as in *tasmaniensis*.



TEXT-FIG. 12.—*Oedosmylus montanus* sp. n., ♂ type. *a*, apex of abdomen, lateral; *b*, ninth tergite and anal plates, dorsal.

♂ Genitalia: eighth and ninth tergites fused, eighth more convex from side, ninth with a pair of raised hairy lobes on the apical margin, in dorsal aspect partly overlapping the trichobothria of the anal plates. Anal plates hood-like, excised, more rounded from the side than in *tasmaniensis*. Tenth sternite stouter, upper angle more slender, curving slightly basad, apices of the plate-like lower margins stouter. Parameres with eversible membranous fingers at the lower apical angles. These fingers are very delicate and may possibly occur in other members of the genus.

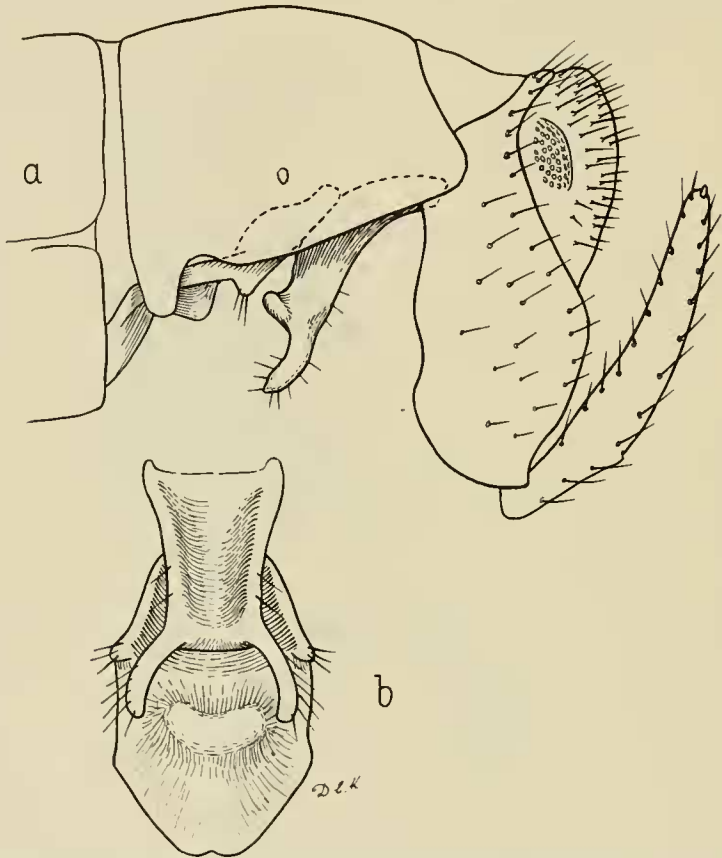
♀ Genitalia: lower margin of eighth tergite near base with a deep rounded excision. Eighth sternite with a reniform prominence in basal half, basal margin excised. Hinged lobe rather stout, apex more roundly excised, arms shorter and

stouter. Upper portion of apex forms a transverse ridge. Lower portion of ninth tergite broader, valves more slender, slightly curved.

Length of anterior wing: ♂ 20 mm., ♀ 21 mm.

QUEENSLAND: National Park, 3-4000 ft.

Type ♂, 18.xii.21, paratype ♂, 20.xii.21, paratype ♀, 21.xii.21, in British Museum.



TEXT-FIG. 13.—*Oedosmylus montanus* sp. n., ♀ paratype. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral.

ISOSTENOSMYLUS Krüger.

(Pls. III and IV.)

Isostenosmylus Krüger, 1913, *Stettin. ent. Ztg.*, **74**: 23, 216; *op. cit.*, **75**: 48, 120.

Genotype: *Osmylus pulverulentus* Gerstaecker.

= *Austrosmylus* Banks, 1913, *Trans. Amer. ent. Soc.*, **39**: 215. (Syn. nov.)

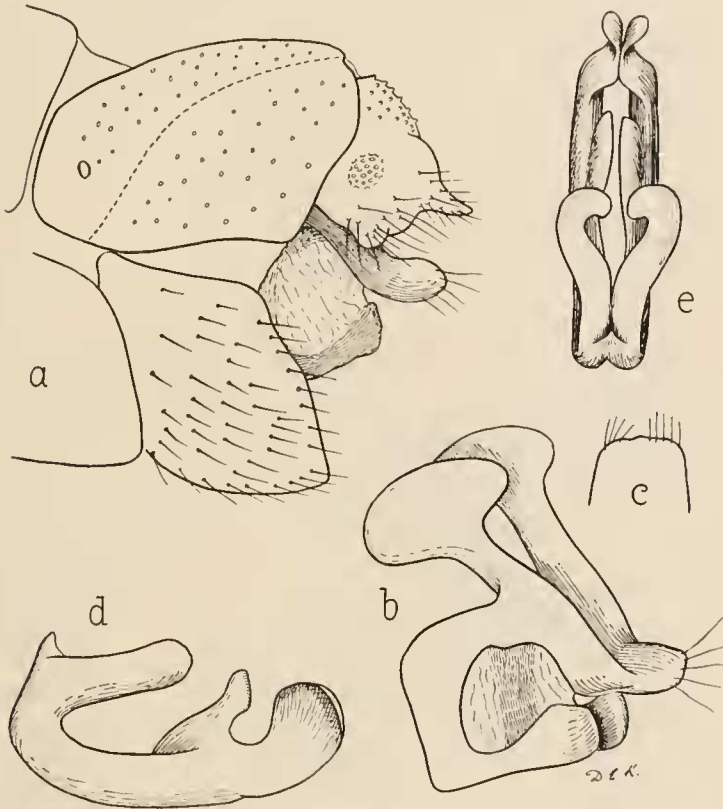
Genotype: *Osmylus pulverulentus* Gerstaecker.

In anterior wing, one cross-vein in the subcostal area. First cross-vein to M beyond the basal corneous spot arises from the first branch of Rs. No thickening of Cu₁ and Cu₂ or IA in either sex. In the hind wing, no basal radio-medial cross-vein; Cu₂ long.

♂. Eighth and ninth tergites fused, line of fusion often indistinct; dorsum

often membranous and impressed in a longitudinal trough. Anal plates fused dorsally, differing in form in the various species. Tenth sternite largely internal, U-shaped, with a branch on lower surface at base. Parameres fused basally, with a pair of basal, and sometimes also apical, branches.

DISTRIBUTION: S. America (Ecuador, Peru, S. Brazil).



TEXT-FIG. 14.—*Isostenosmylus fusciceps* sp. n., ♂ paratype. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, apex of the same, dorsal; *d*, parameres, lateral; *e*, the same, dorsal.

Isostenosmylus fusciceps sp. n.

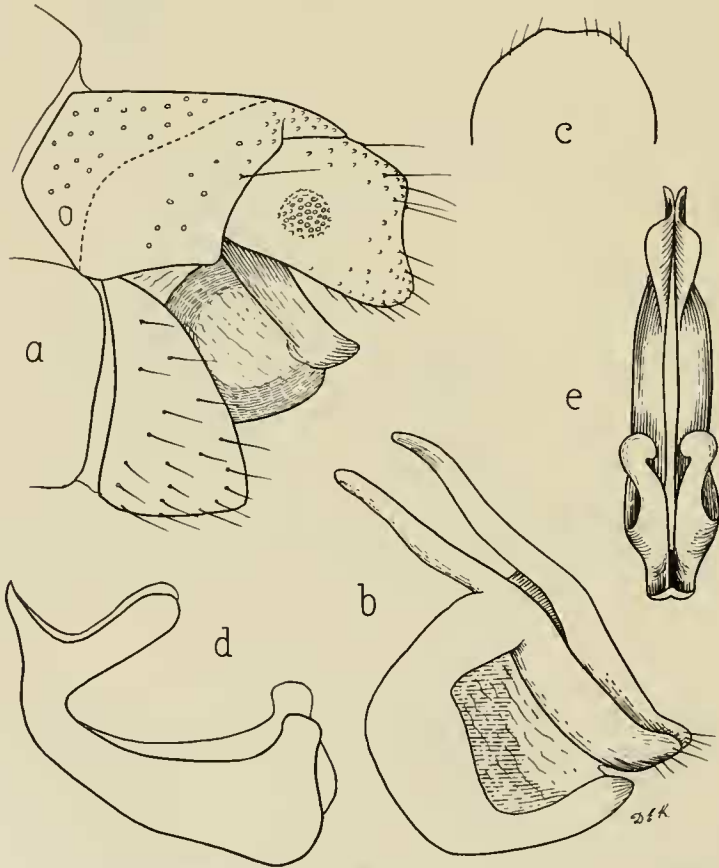
(Pl. III, fig. 1; text-fig. 14.)

♂. Vertex, frons to below antennae, and genae fuscous, remainder fulvous, palpi dark fulvous. Antennae with two basal, and under surface of some succeeding segments dark, remainder light fulvous. Pronotum nearly twice as long as wide, fuscous, with golden-brown setae. Meso- and metanota fuscous with darker markings. Legs pale yellowish, tibiae finely speckled with blackish and with a narrow, external, apical band of blackish. Abdominal segments 1-7 fuscous, remainder fulvous. Wings greyish hyaline, marked with brownish as in Pl. III, fig. 1. Veins mainly brownish, with some whitish areas.

Anal plates small, apical margins produced in short, broad spatulae, slender from the side; lower angles slightly produced and rounded. Ninth sternite rather large, rhomboidal from the side. Tenth sternite largely internal, with its apex produced in a short quadrate plate, whose apical margin is fringed with fine setae. Sides of the segment slender, terminating in ovate plates. From the lower margin of each side arises a flattened branch, bent twice at right angles, so that its apex approaches the apex of the segment, the area between the branch and the segment membranous. Parameres with the basal branches (the attachment to the tenth sternite) directed apically and approaching each other; in dorsal aspect they appear somewhat lyriform. Apices of the parameres thin, somewhat dilated, from above approximating and then diverging. Shortly before its apex each paramere bears on its upper surface an upwardly directed branch.

Length of anterior wing 25 mm., of posterior wing 23 mm.

Type ♂, 1 paratype ♂, PERU: Callanga, from the McLachlan collection, now in the British Museum.



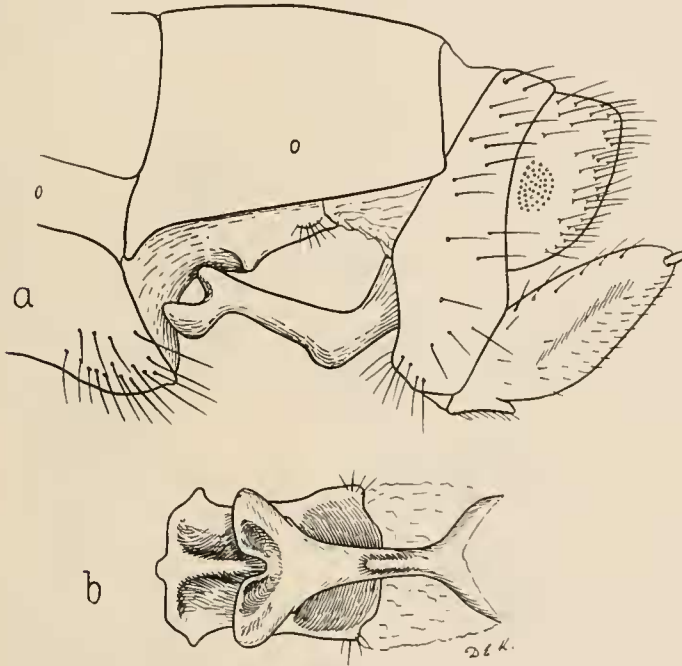
TEXT-FIG. 15.—*Isostenosmylus pulverulentus* (Gerst.), ♂. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, apex of the same, dorsal; *d*, parameres, lateral; *e*, the same, dorsal.

***Isostenosmylus pulverulentus* (Gerstaecker).**

(Pl. III, fig. 2; text-figs. 15, 16.)

Osmylus pulverulentus Gerstaecker, 1893, *Mitt. naturw. Ver. Greifswald*, 25 : 166.*Isostenosmylus pulverulentus* (Gerst.), Krüger, 1913, *Stettin. ent. Ztg.*, 74 : 26, 112-115, 216.*Austrosmylus pulverulentus* (Gerst.), Banks, 1913, *Trans. Amer. ent. Soc.*, 39 : 215.*Isostenosmylus pulverulentus* (Gerst.), Krüger, 1914, *Stettin. ent. Ztg.*, 75 : 120-121.

There is little to add to the general descriptions of Gerstaecker and Krüger. I have seen a more heavily marked specimen from "Espirito Santo" in which the cubital spot at the level of the apex of A_1 is extended forward as a narrow streak to the radius.



TEXT-FIG. 16.—*Isostenosmylus pulverulentus* (Gerst.), ♀. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral.

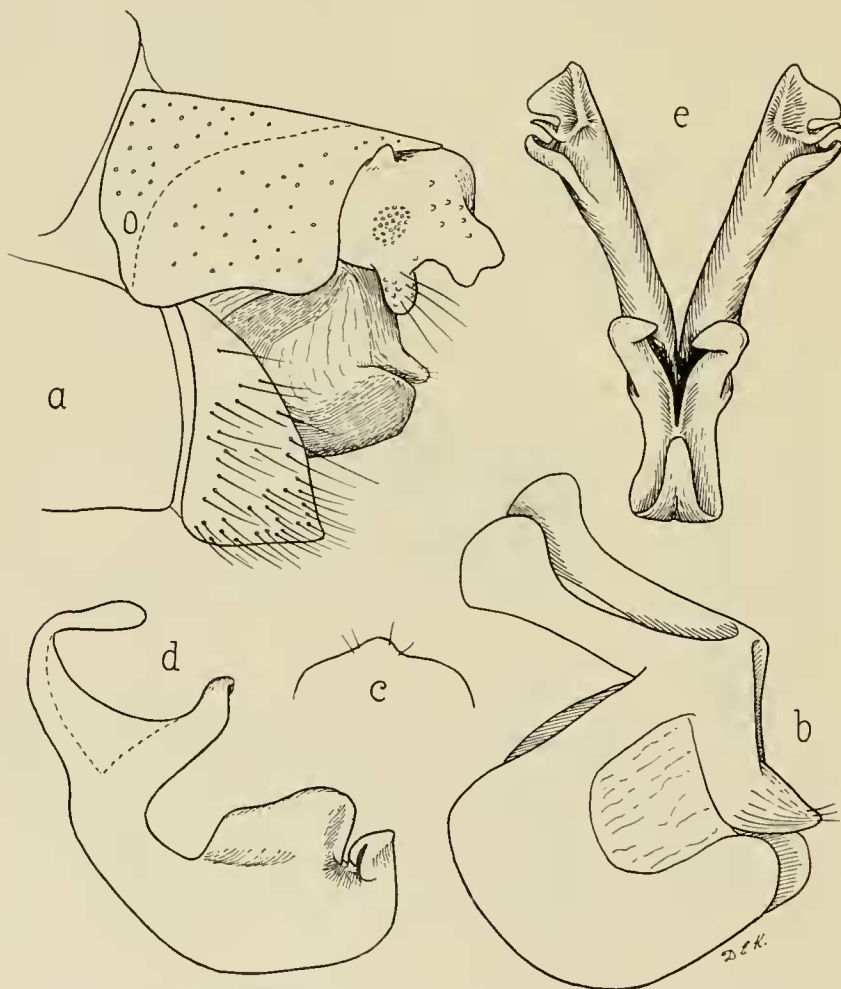
♂ Genitalia : line of fusion between eighth and ninth tergites marked by an internal thickening; ninth more chitinized than eighth, its apical margin produced in a rounded lobe, which is divided to its base by a V-shaped, membranous, apparent excision. Margin of ninth sternite, from beneath, projecting in an obtuse triangle. Anal plates obliquely truncate, lower apical angles rounded. Tenth sternite rather as in *fusciceps*, the apical margin rounded, its centre shallowly excised. Sides of the sternite slender, not dilated at the ends, lower branches broader. Parameres without an upper branch near apex, which is much deeper. Basal branches less apically directed, fused basal portion of parameres longer and more acute.

♀. Apical margin of seventh sternite produced in an elliptical, somewhat truncated lobe. Eighth sternite about two-thirds of the length of tergite, with

a longitudinal ridge; basal margin curved down at right angles to meet the produced apex of seventh sternite. There is a transverse ridge about mid-length of the sternite and the anterior angles are slightly raised and hairy. Attached anteriorly by membrane is a slender lobe with a dilated and excised apex, directed basally. From the side this lobe is angled near its base and the apex is divided into an upper and lower portion by a rounded excision. Ninth tergite short and deep, valves rather broad, lanceolate, each with a small apical style and a small pointed process on the lower margin near the base.

Length of anterior wing 21-25 mm.

The above descriptions are based on a pair from Rio Grande do Sul. In view of the general resemblance in wing pattern between the various species, I suspect that Gerstaecker's example from "Hoch-Peru" may prove to be not conspecific with those from Southern Brazil.



TEXT-FIG. 17.—*Isostenosmylus fasciatus* sp. n., ♂ type. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, apex of the same, dorsal; *d*, parameres, lateral; *e*, the same, dorsal.

Isostenosmylus fasciatus sp. n.

(Pl. IV, fig. 1; text-fig. 17.)

♂. Head light fulvous, marked with brownish on the genae, centre of clypeus, below antennae and on vertex. Palpi and two basal segments of antennae brownish. Pronotum nearly twice as long as broad, dark brown, with a broad, yellowish, median fascia. Meso- and metanota dark brown, with yellowish markings. Legs as in *fusciceps*. Abdominal tergites 1-7 brownish, with a narrow, median, yellowish line. Sternites and apex of abdomen yellowish. Wings greyish hyaline, marked with brownish as in Pl. IV, fig. 1. Venation brownish, with pale areas forming four indefinite streaks across the anterior wing. Area between first and second branches of Rs rather broader than in preceding species.

Apical margin of ninth tergite produced, sternite from beneath moderately produced, margin forming a flattened cusp. Anal plates small, basal margin elevated in a small triangular projection. Apical angles produced, the lower rounded and hairy, the upper broad, its apex from above rounded, from the side with a shallow excision. Tenth sternite with rounded apical margin, its centre more produced. Sides slender, apices moderately dilated, forming clavate plates.

Parameres more developed than in preceding species. The fused base angled upwards, basal branches directed upward. Apices larger and with a complex system of folds on their upper outer surfaces.

Length of anterior wing 23 mm., of posterior wing 21 mm.

Type ♂, PERU: Callanga; paratype ♂, BOLIVIA: "Chaico", in the British Museum, both from the McLachlan collection.

Isostenosmylus nigrifrons sp. n.

(Pl. IV, fig. 2; text-fig. 18.)

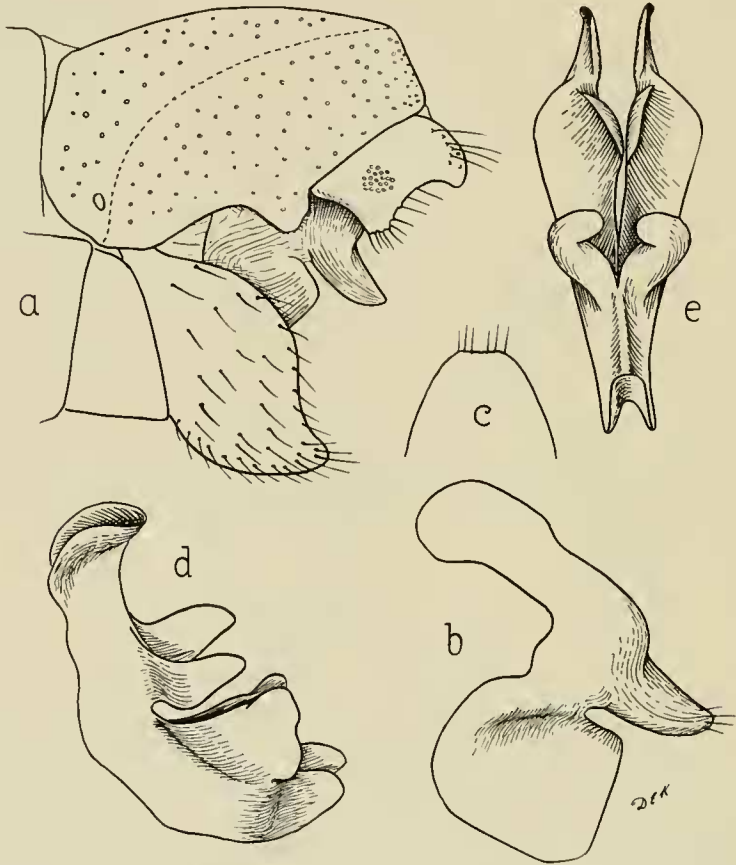
♂. Head fulvous, frons below and between antennae, with a black transverse band from eye to eye. In the centre this band extends downward in a tongue, and on either side of it, between the eye and the tentorial pit, is a round black spot. Genae and palpi shining black. Antennae (incomplete) yellowish, two basal segments brownish. Prothorax a little more than twice as long as broad, blackish, with a yellowish median fascia. Meso- and metanota yellowish, with black markings. Legs as in other species of the genus. Abdomen (discoloured) brownish above, fulvous beneath. Wings similar to *fasciatus*, more lightly marked, but with the posterior margin of hind wing distinctly clouded with brownish.

From the side the dorsal outline of the eighth and ninth tergites is distinctly angled at the point of fusion. Apical margin of ninth sternite produced at its centre in a short finger. Anal plates with the upper and lower apical angles produced, the latter only slightly, rounded, and hairy on its inner surface; the upper is larger and hooked downwards. Excision between upper processes in dorsal aspect with sinuous sides. Tenth sternite from above with its apical margin parabolic, its apex flattened or slightly excised. Bases of the arch dilated only on their lower sides; lower branches in form of quadrate plates attached by short, thick stems. Fused bases of the parameres with a V-shaped

excision in dorsal aspect; basal branches shorter than in *fasciatus*, directed upward and incurved apically. Apex of paramere broad, plate-like, apical branch also plate-like and separated from apex by an excision.

Length of anterior wing 22 mm., of posterior wing 20 mm.

Type ♂, ECUADOR: Intaj, from the McLachlan collection, now in the British Museum.



TEXT-FIG. 18.—*Isostenosmylus nigrifrons* sp. n., ♂ type. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, apex of the same, dorsal; *d*, parameres, lateral; *e*, the same, dorsal.

Isostenosmylus morenoi (Navás).

Oedosmylus morenoi Navás, 1928, *Bol. Soc. ent. Esp.*, 17: 91.

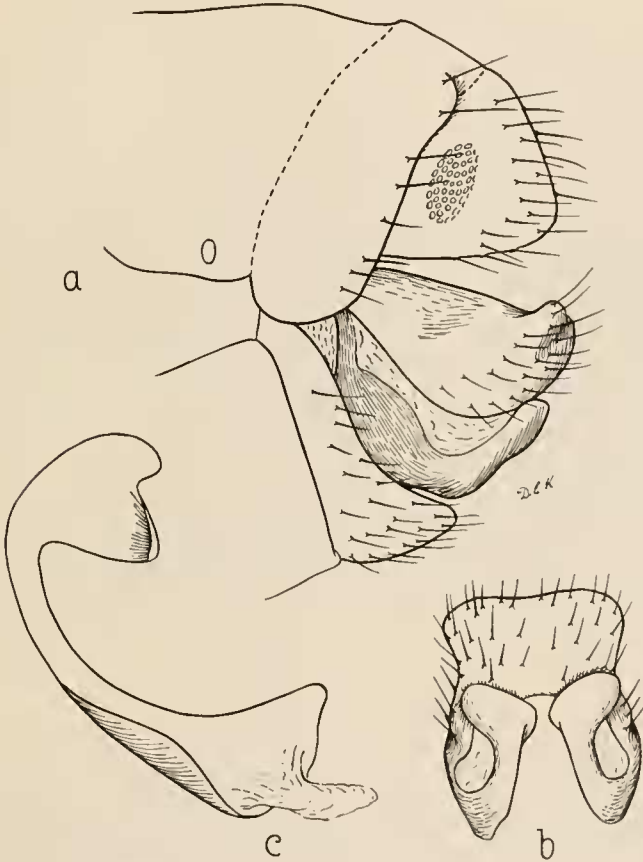
Navás has described, under the name *Oedosmylus morenoi*, an *Isostenosmylus* from Ecuador. He says that it resembles *I. pulverulentus* Gerst., and his figure certainly is very like the variety of that species which I have mentioned from Espirito Santo. The type lacks most of its abdomen and it will probably prove difficult to decide whether any of the foregoing species are conspecific with it.

EUPORISMUS Tillyard.

(Pl. V, fig. 1; text-fig. 19.)

Euporismus Tillyard, 1916, *Proc. Linn. Soc. N.S.W.*, 41: 43.
Genotype: *E. albatrox* Tillyard.

Wings with large, opaque, white patches at apices, remainder of anterior and apical half of posterior dark brown, mottled with white. In anterior wing, first cross-vein to the medius beyond the basal corneous point arises from the first



TEXT-FIG. 19.—*Euporismus albatrox* Tillyard, ♂ type. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, parameres, lateral.

branch of the radial sector. Medius forks several cells beyond the second corneous point. Cu_2 in posterior wing long. Gradate veins form a very even line; outer branches of radial sector very numerous.

Tillyard placed this genus between *Oedosmylus* and *Porismus*, considering it to be allied to *Porismus*. At the time of publication (1916) Tillyard was probably unacquainted with Krüger's revision of the Osmylidae. His description unfortunately omits all reference to the chief character separating *Porismus* from the other subfamilies, namely, the presence of numerous cross-veins in the subcostal area. The type of *Euporismus* has only one cross-vein in this area (the figure

accompanying his description is inaccurate in this respect), and this, coupled with the absence of a basal cross-vein connecting the medius with the radial sector in the posterior wing, and the distant furcation of the medius in the anterior wing places this genus in the *Stenosmylinae*. Tillyard is undoubtedly correct in comparing it with *Oedosmylus*, but until the female is known one cannot say whether certain veins are swollen, as in *Oedosmylus*. Its striking wing pattern will readily distinguish *Euporismus* from other members of the subfamily.

Euporismus albatrox Tillyard.

(Pl. V, fig. 1; text-fig. 19.)

Euporismus albatrox Tillyard, 1916, *Proc. Linn. Soc. N.S.W.*, **41**: 44, pl. 1, fig. 1; 1926, *Ins. Austr. N.Z.*: 320, pl. 24, fig. 2.

The type, a male, is now in the British Museum. To Tillyard's description the following notes on the genitalia may be added:

No apparent eversible scent-glands between the eighth and ninth tergites, which are fused; ninth fused dorsally to anal plates, free margin produced in a small rounded lobe on each side of the fused part. Ninth sternite short, triangularly produced from the side. Anal plates fused together dorsally at base, apically separated by a deep incision; from the side triangular, apex rounded. Tenth sternite large, projecting slightly beyond anal plates, hairy, apex truncate, angles gently upcurved. From beneath, lateral margins are broadly emarginate. Basal angles of sternite produced in curved branches, shorter than sternite, apices from beneath clavate and outspread. Parameres slender, fused basally, apices dilated, lower apical margin extended downwards and outwards, supporting the usual membranous eversible finger.

Length of anterior wing 30 mm., posterior wing 28 mm.

QUEENSLAND: Killarney, head of Condamine R., i. 1914 (*E. J. Dumigan*). Of the three paratypes mentioned by Tillyard (sex not stated) one is in Dr. Esben-Petersen's collection, one in Mr. Banks's collection, and the third is presumably in the Australian Museum, Sydney, or in the Entomological Dept., Council for Scientific and Industrial Research, Canberra.

KALOSMYLINAE Krüger.

Kalosmylinae Krüger, 1913, *Stettin. ent. Ztg.*, **74**: 40, 104-113.

In anterior wing, one cross-vein in subcostal area; medius forking near its base, but beyond the origin of the first branch of Rs. In posterior wing a basal cross-vein between the medius and the radial sector, not very sinuous; Cu₂ long. In the male a pair of eversible scent-glands between the eighth and ninth tergites.

KEY TO GENERA.

1. In posterior wing, branches of medius widely separated, cells between them long and sinuous; New Zealand, Australia, Chile *Kempynus* Navás.
In posterior wing, branches of medius not widely separated, cells between them short, quadrate 2.
2. In posterior wing, M₃ separates from M₄ at about the level of the apex of Cu₁; small species, New Zealand *Euosmylus* Krüger.
M₃ separates from M₄ two or three cells before apex of Cu₁; larger species, Australia *Australysmus* gen. n.

KEMPYNUS Navás.

(Pls. VI and VII.)

- Kempynus* Navás, 1912, *Mem. R. Acad. Barcelona*, **10** (9) : 59.
 Genotype: *Osmylus excisus* Navás (= *Osmylus incisus* McL.).
- Banks, 1913, *Trans. Amer. ent. Soc.*, **39** : 214.
 Genotype: *Stenosmylus incisus* McLachlan.
- = *Kalosmylus* Krüger, 1913, *Stettin. ent. Ztg.*, **74** : 23, 96-102.
 Genotype: *Osmylus incisus* McLachlan. (Syn. nov.)
- = *Osmylinus* Banks, 1913, *Trans. Amer. ent. Soc.*, **39** : 214.
 Genotype: *Osmylus longipennis* Walker. (Syn. nov.)

Krüger proposed the suppression of Navás' name *Kempynus* on the grounds that (a) the name was incorrectly spelt, being derived from Kempny, and should have been *Kempnyus*; (b) the genus was based on a non-existent species (*excisus* McLachlan).

The first is no reason for rejection, nor is there even a case for emendation of the name, as it is perfectly clear that Navás intended this spelling, for he used it no less than six times in his publication. As regards the second, this is due to a *lapsus calami* by Mr. W. F. Kirby in labelling McLachlan's type of *O. incisus*, which was copied without verification by Navás. Even so, *Kempynus excisus* is not a non-existent species, as a very full description was given by Navás when erecting the genus *Kempynus*. I therefore consider *Kempynus* to be a valid genus with as genotype *Kempynus excisus* Navás, = *Osmylus incisus* McL.

Wings falcate or entire. Anterior with one cross-vein in subcostal area; medius forking near base, but beyond origin of first branch of radial sector. Posterior wing: basal radio-medial cross-vein present, M_{1+2} and M_{3+4} widely separated, cells between them long, narrow and sinuous; M_3 separates from M_4 several cells before apex of Cu_1 ; often a basal cross-vein from fork of medius to cubitus; Cu_2 long. Relatively large species, expanse 42-55 mm.

DISTRIBUTION: New Zealand, Australia, Chile.

***Kempynus incisus* (McLachlan).**

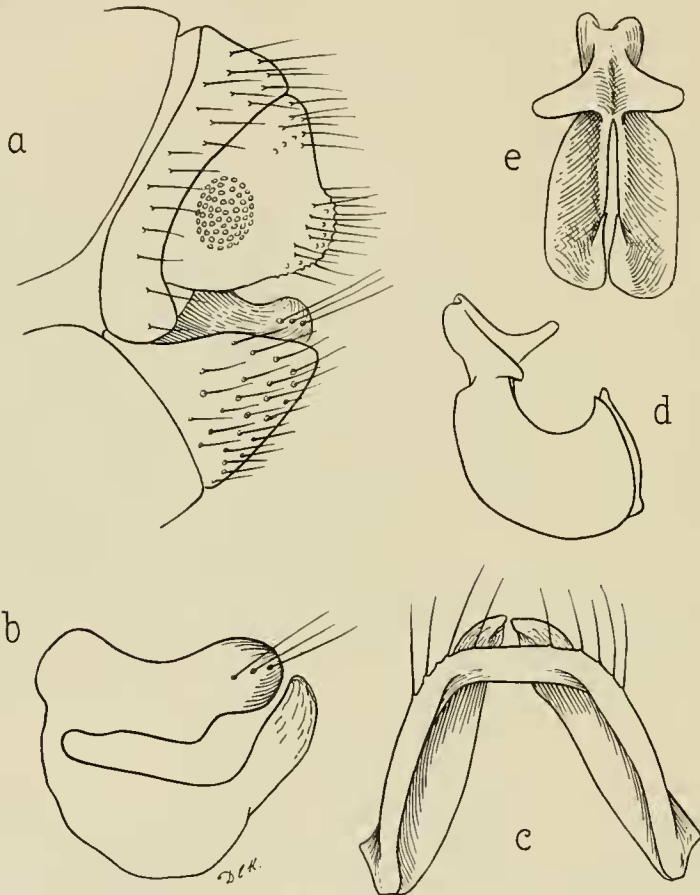
(Pl. VI, fig. 1; text-figs. 20, 21.)

- Osmylus* (?) *incisus* McLachlan, 1863, *J. Ent.*, **2** : 112; Hagen, 1866, *Stettin. ent. Ztg.*, **27** : 455.
- Stenosmylus incisus* (McLachlan), 1870, *Ent. mon. Mag.*, **6** : 195; 1873, *Ann. Mag. nat. Hist.*, (4), **12** : 38; 1894, *Ent. mon. Mag.*, **30** : 241-242. Hudson, 1904, *N. Z. New.* : 50.
- Kalosmylus incisus* (McL.), Krüger, 1913, *Stettin. ent. Ztg.*, **74** : 26, 96-102, 212-213; 1914, *op. cit.*, **75** : 104-106.
- Kempynus incisus* (McL.), Banks, 1913, *Trans. Amer. ent. Soc.*, **39** : 215. Tillyard, 1926, *Ins. Austr. N.Z.* : 320.
- Kempynus excisus* Navás, 1912, *Mem. R. Acad. Barcelona*, **10** (9) : 59.

This species varies somewhat in the intensity of the markings. One form has the smaller mottlings of the anterior wing merged into the ground-colour, only the large markings along the posterior margin distinct.

♂ Genitalia: ninth tergite short and deep, sternite triangular from side, apical margin rounded, with a small, shallow excision at its centre. Anal plates fused, hood-like, apical margin broadly excised; from side triangular, upper and apical angles with rounded hairy warts, apical the larger. Tenth sternite largely withdrawn, arched, apex from above truncate, from side rounded. From basal

angles arise large curved branches, whose apices converge, and project a little beyond apex of sternite. Parameres short, fused basally; on the dorsal surface near the base are a pair of outspread, slender wings. Beyond, the parameres are curved upward, plate-like, lower margins produced downward and outward, probably covered with membrane and each with an eversible finger, as occurs in *citrinus*.



TEXT-FIG. 20.—*Kempynus incisus* (McL.), ♂ type. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, the same, dorsal; *d*, parameres, lateral; *e*, parameres, dorsal.

♀. Seventh sternite slightly produced, and bearing on its apical margin a pair of small, slender processes, separated by about twice their length. Eighth tergite large and deep, sternite short, from beneath broad and sinuous, concave at its centre, raised sides with a few radiating setae. Hinged lobe set at some distance from sternite, connected to it by membrane, in side view arising between the sides of ninth tergite. From beneath, it is bifurcate, the two branches separated by a wide rounded excision, apices dilated, obliquely truncate and turned abruptly downward. Ninth tergite narrow, not much dilated at its lower angles; valves

rather broad, of medium length, a short, stout style just before the apex. Anal plates short, deep, fused dorsally to form a hood, bearing two transverse bands of stout setae, one at apex and other towards base. Accessory glands with long ducts, each terminating in an elongate sac, constricted midway, the apical part being the larger.

From three examples marked "Type" by McLachlan, I have selected as



TEXT-FIG. 21.—*K. incisus* (McL.), ♀. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral; *c*, accessory glands.

holotype a male in the British Museum, labelled "Auckland, N. Zeal." and "excisus M'L. type" in W. F. Kirby's handwriting. There is another paratype (without abdomen) from the same locality, labelled "Kempynus excisus McLach." by Navás, and two male paratypes "Otago, Oxley," from McLachlan's collection.

In the British Museum are additional specimens from the following localities: Wellington; Wainuiomata; Wilton's Bush; Waitara; Kaitoke, all collected and presented by Mr. G. V. Hudson.

Kempynus citrinus (McLachlan).

(Pl. VI, figs. 2, 3; text-figs. 22, 23.)

Stenosmylus citrinus McLachlan, 1873, *Ann. Mag. nat. Hist.*, (4), **12** : 38; *id.*, 1894, *Ent. mon. Mag.*, **30** : 242; Hudson, 1904, *N. Z. Neur.* : 51.
Kalosmylus citrinus (McL.), Krüger, 1913, *Stettin. ent. Ztg.*, **74** : 26, 96-102, 213; *id.*, 1914, *op. cit.*, **75** : 106-108.
Kempynus citrinus (McL.), Banks, 1913, *Trans. Amer. ent. Soc.*, **39** : 215; Tillyard, 1926, *Ins. Austr. N.Z.* : 320.

This appears to be a more variable species than *K. incisus*, the extreme form that I have seen being very prettily mottled on both wings, the membrane being greyish rather than yellowish. Another variety has a brownish streak between the branches of the cubitus in the anterior wing.

♂. Genitalia scarcely distinguishable from *incisus*. Apical margin of tenth sternite less truncate, basal branch larger. Parameres with an eversible finger at lower apical angle, arising from membrane covering paramere. This membrane is very delicate and liable to damage during clearing in caustic potash, and probably occurs in other species also.

♀. Similar to *incisus*. Apex of seventh sternite slightly produced, rounded, margin with a pair of very small teeth, sometimes absent. Eighth sternite roughly triangular from beneath, concave at its centre, with a deep apical incision, which is narrower than in *incisus*. Apices of hinged lobe less dilated, incurved and not turned down. Ninth tergite narrow, slightly dilated at lower angles, valves a little broader than in *incisus*. Anal plates nearly as long as deep, hood-like, setae arranged in two groups. Accessory gland more constricted, terminal sac set at right angles to stem.

The type is a female, labelled "New Zealand." Other specimens in the British Museum from the following localities: Wellington; Waitara; Wainuiomata; Wilton's Bush (collected by *G. V. Hudson*) and from Ohakune (*T. R. Harris*).

Kempynus latiusculus (McLachlan).

(Pl. VII, fig. 1; text-fig. 24.)

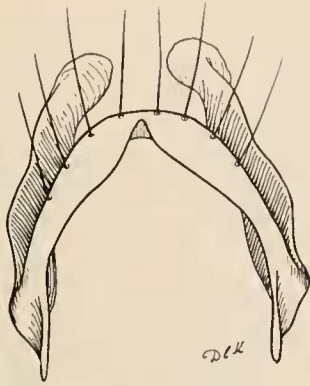
Stenosmylus latiusculus McLachlan, 1894, *Ent. mon. Mag.*, **30** : 241; Hudson, 1904, *N. Z. Neur.* : 54; Tillyard, 1926, *Ins. Austr. N.Z.* : 320, pl. 24, fig. 1.
Kalosmylus latiusculus (McL.) Krüger, 1913, *Stettin. ent. Ztg.*, **74** : 26, 96-102, 213; *id.*, 1914, *op. cit.*, **75** : 108-109.

This species appears to vary little, most examples before me being less mottled (tessellated) than the type.

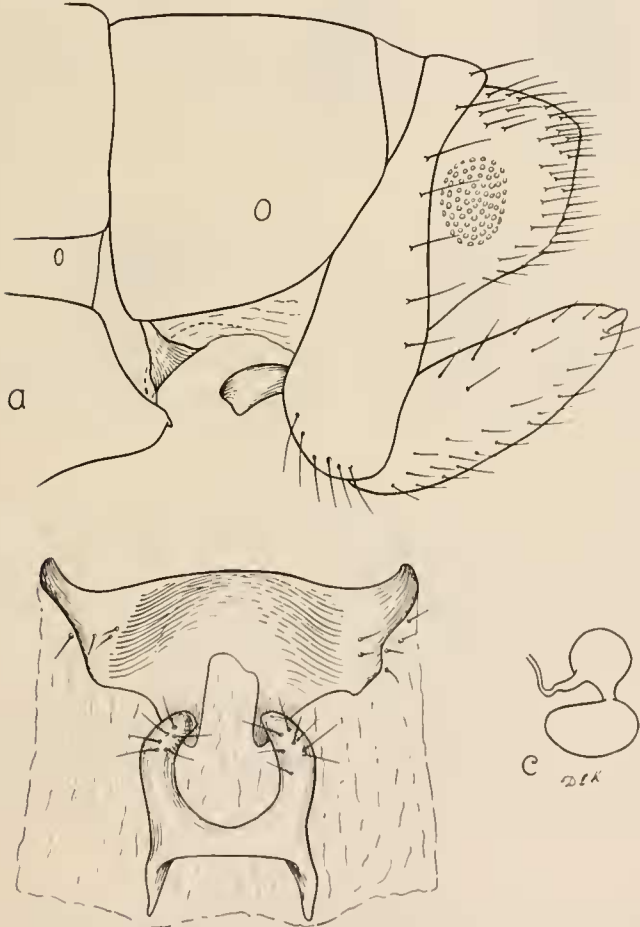
♂. Apex of anal plates slightly truncate from side. Tenth sternite more robust, apical margin more hairy, from above broader and more rounded than in *incisus* and *citrinus*.

♀. Differing only in a few details from *incisus* and *citrinus*. Seventh sternite with a pair of small triangular processes on its apical margin. Eighth sternite very lightly chitinized, hinged lobe from side with apex dilated, lower angle right-angled, upper rounded. The apex is not abruptly bent down as in *incisus*. From beneath the arms of the lobe are less widely separated, excision between them oval, not circular. Terminal sac of accessory gland pyriform.

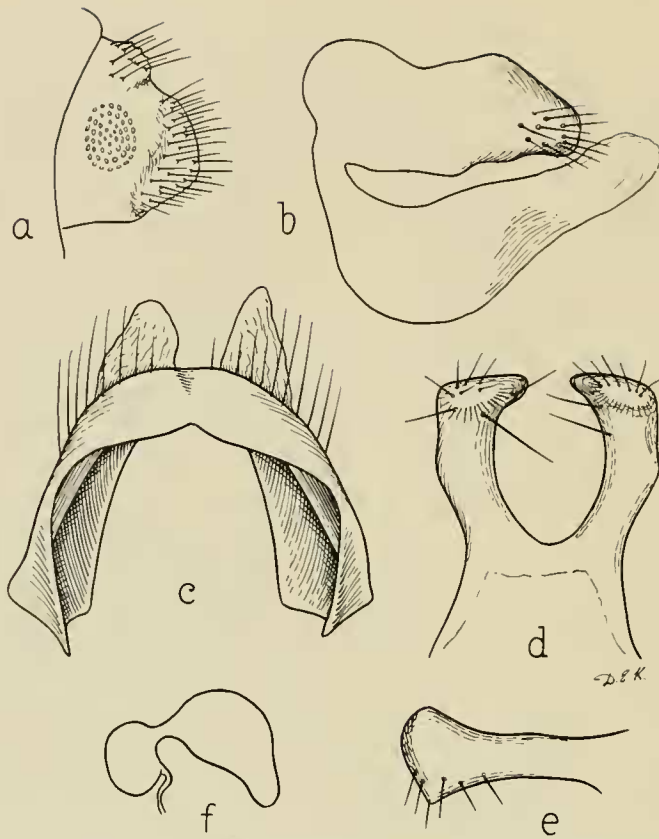
Type is a female, labelled "Otira Gorge, on window at light." Subsequent specimens from the following localities: Wellington, Hutt Forks (*Stella Hudson*) and Wellington, Mangaterua R. (*G. V. Hudson*).



TEXT-FIG. 22.—*K. citrinus* (McL.), ♂. Tenth sternite, dorsal.



TEXT-FIG. 23.—*K. citrinus* (McL.), ♀. *a*, apex of abdomen, lateral; *b*, eighth sternite, ventral; *c*, apex of accessory gland.



TEXT-FIG. 24.—*K. latiusculus* (McL.), *a-c*, ♂; *d-f*, ♀. *a*, anal plate, lateral; *b*, tenth sternite, lateral; *c*, the same, dorsal; *d*, lobe of eighth sternite, ventral; *e*, apex of same, lateral; *f*, apex of accessory gland.

***Kempynus longipennis* (Walker).**

(Pl. VII, fig. 2.)

Osmylus longipennis Walker, 1853, *List. Neur. Ins. Brit. Mus.*, 2 : 235; Hagen, 1866, *Stettin. ent. Ztg.*, 27 : 455.

♂ *Stenosmylus longipennis* (Walk.), McLachlan, 1868, *J. Linn. Soc. Lond. (Zool.)*, 9 : 268; *id.*, 1870, *Ent. mon. Mag.* 8 : 195.

Kalosmylus longipennis (Walk.), Krüger, 1913, *Stettin. ent. Ztg.*, 74 : 26, 96-102, 213-214; *id.*, 1914, *op. cit.*, 75 : 109-110.

Osmylinus longipennis (Walk.), Banks, 1913, *Trans. Amer. ent. Soc.*, 39 : 214.

This species is still represented in the British Museum only by the type. This now lacks part of the abdomen, all but two segments of an antenna, one anterior leg and four tarsal segments of the other; the margins, particularly of the anterior wing, are damaged. I quote Walker's description, enclosing any additional notes of my own within square brackets :

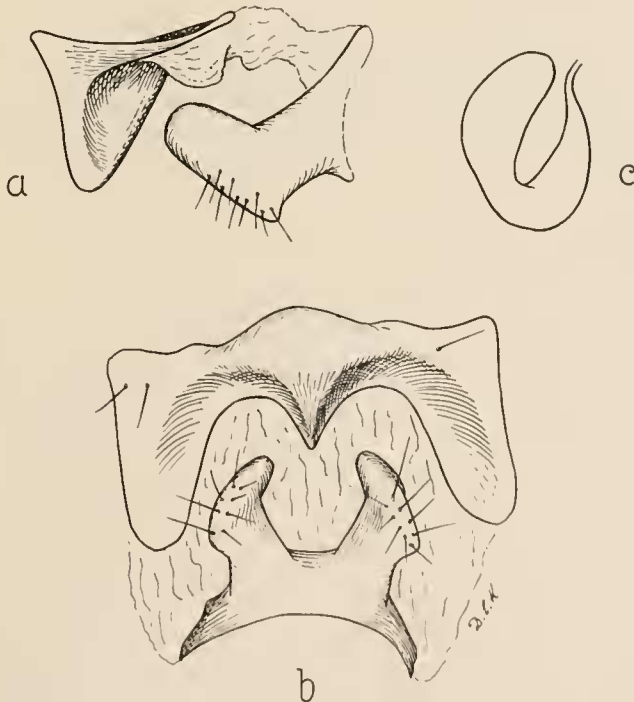
“OSMYLUS LONGIPENNIS.

“*Piceus*; *prothorax linearis*; *pedes testacei, fasciis tarsisque piceis*; *alae cinerascetes, longissimae, anticae fusco guttatae*.

" [Head testaceous, marked with brownish on face below antennae, dark brown above antennal bases and two impressed dark brown areas on vertex.] Subcostal veinlets much more numerous than in *O. chrysops*, and more contiguous towards the base; veinlets of the sector of the second radius [branches of the radial sector] also much more numerous; gradate veinlets forming many more series; veins more oblique towards the tips; marginal veinlets much more numerous; areolets in the disk much more numerous, more alike and regular in form, generally almost square. Pitchy: prothorax linear [24:19], longer than that of *O. chrysops*, and not narrower in front as is the latter [anterior angles rounded]: legs testaceous, with pitchy bands [three on each tibia, apical, median, basal, one large median and small apical on each femur]: tarsi pitchy: wings grayish, very long; fore wings very thickly covered with [diffuse] brown dots, many of which are confluent [general appearance is of a brownish wing, with darker markings along radius and cubitus, margins with small white dots]; veins brown [with pale interruptions along radius and cubitus, marginal gradate series pale]. Length of body 5 lines; [expanse] of the wings 30 lines.

" a. New Holland."

The type (sex doubtful) now carries a printed label "Australia" and a manuscript label "*O. longipennis* Australia" not in Walker's handwriting. It resembles a large and very darkly marked example of *K. latiusculus* (McL.). One pair of wings has been removed from the type and placed between glass slides for figuring and as a measure of protection against further deterioration.



TEXT-FIG. 25.—*K. falcatus* Navás, ♀ type. a, eighth sternite, lateral; b, the same, ventral; c, apex of accessory gland.

Kempynus falcatus Navás.

(Pl. VII, fig. 3; text-fig. 25.)

Kempynus falcatus Navás, 1912, *Mem. R. Acad. Barcelona*, **10**, (9) : 60; *id.*, 1930, *Rev. Chil. Hist. nat.*, **40** : 180.? *Kalosmylus falcatus* (Nav.) Krüger, 1913, *Stettin. ent. Ztg.*, **74** : 214, 221; *id.*, 1914, *op. cit.*, **75** : 110-111.*Stenosmylus* sp. McLachlan, 1894, *Ent. mon. Mag.*, **30** : 241.

Navás' description of general appearance and figure of wing pattern are reasonably good. His type is a female and is from Mulchen, not Meelchen as given by Navás. The specimen mentioned by McLachlan is paler, but is undoubtedly conspecific.

♀ Genitalia : seventh sternite scarcely produced, eighth short, broad, apical margin with two deep rounded excisions, separated by a triangular, elevated promontory; from the side this appears as a deep triangular keel. Lobe short, bifurcate, apices incurved from beneath, angled upward from side. Ninth tergite narrow, slightly dilated at lower angles; valves broad, apices bluntly rounded. Anal plates short, deep, angles rounded. Terminal sac of accessory gland slightly constricted and folded back upon itself, duct not very long.

Type ♀, CHILE : Mulchen, i. 1902, *H. J. Elwes*.

1 ♀, "Araucania", ii. 1888, from McLachlan collection.

EUOSMYLUS Krüger.

(Pl. VIII.)

Euosmylus Krüger, *Stettin. ent. Ztg.*, **74** : 23, 102-105.Genotype : *Stenosmylus stellae* McLachlan.

Wings falcate, venation much as in *Kempynus*, but branches of medius in posterior wing less separated, cells between them broader, quadrate, not sinuous; M_3 separates from M_4 about the apex of Cu_1 ; often a basal cross-vein from fork of medius to cubitus. Small species, expanse 25-32 mm. Genitalia very similar to *Kempynus*.

DISTRIBUTION : New Zealand.

Euosmylus stellae (McLachlan).

(Pl. VIII, text-fig. 26.)

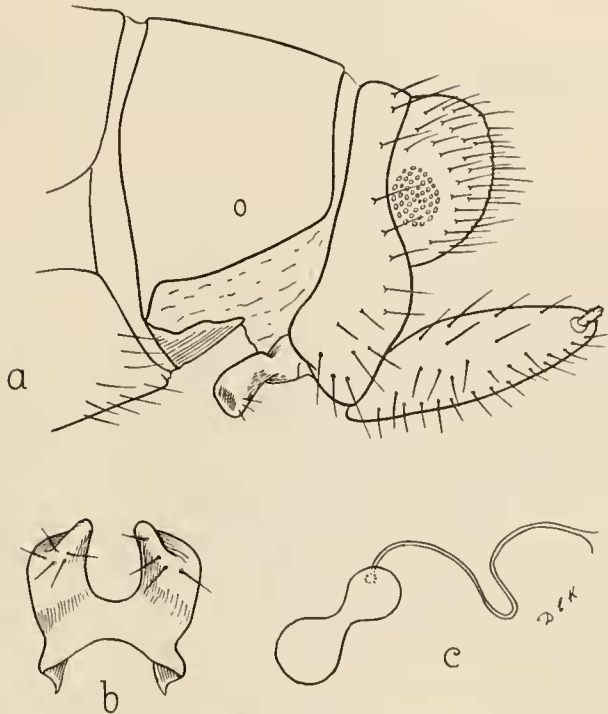
Stenosmylus stellae McLachlan, 1899, *Ent. mon. Mag.*, **35** : 259-260; Hudson, 1904, *N. Z. Natur.* : 52-54.*Euosmylus stellae* (McL.) Krüger, 1913, *Stettin. ent. Ztg.*, **74** : 26, 102-105, 214; *id.*, 1914, *op. cit.*, **75** : 111-113.*Kempynus stellae* (McL.) Banks, 1913, *Trans. Amer. ent. Soc.*, **39** : 215.var. *connexus* McL., 1899, *Ent. mon. Mag.*, **35** : 259.var. *obliteratus* McL., 1899, *ibid.*, **35** : 260.

This species varies considerably in size, markings and breadth of wings.

♂ genitalia are scarcely distinguishable from *incisus*. The ninth tergite is a little broader at its lower angles, and the apex of the anal plate a little more prominent.

♀. Seventh sternite slightly produced, margin with a pair of small, obtuse, triangular projections. Eighth sternite short, convex, about half as long as tergite, apex excised; lobe short, from beneath with short, stout arms, separated by a U-shaped excision. Apices obliquely truncate, somewhat excavate, inner

angles the longer. From side, the lobe is slightly downcurved, arms gradually dilating to apices, a small triangular process on upper surface at base. Ninth tergite slightly more dilated at lower angles than *incisus*, valves short and broad. Anal plates not as long as deep, angles rounded. Accessory gland hour-glass-shaped, terminal sac the larger; duct much shorter than in *Kempynus*.



TEXT-FIG. 26.—*Euosmylus stellae* (McL.), ♀ paratype. *a*, apex of abdomen, lateral; *b*, lobe of eighth sternite, ventral; *c*, accessory gland.

Type female, 2 ♂ 1 ♀ paratypes from Wainuiomata, near Wellington, also other specimens from the same locality.

Var. *connexus* McL.

Type ♂, 1 ♂ paratype from Wainuiomata; other specimens from the same locality and from Nelson.

Var. *obliteratus* McL.

Type ♂, 3 ♂♂ paratypes from Wainuiomata; other specimens from the same locality.

AUSTRALYSMUS gen. nov.

(Pl. V, fig. 2.)

Wings not falcate. Anterior with one cross-vein in subcostal area; medius forking near base but beyond origin of first radial sector. In posterior wing, basal radio-medial cross-vein present; branches of medius not very widely separated, cells quadrate, not sinuous; M_3 separates from M_4 two or three cells

before apex of Cu_1 ; no basal cross-vein from fork of medius to cubitus. Cu_2 long. Species large, 40–44 mm. expanse.

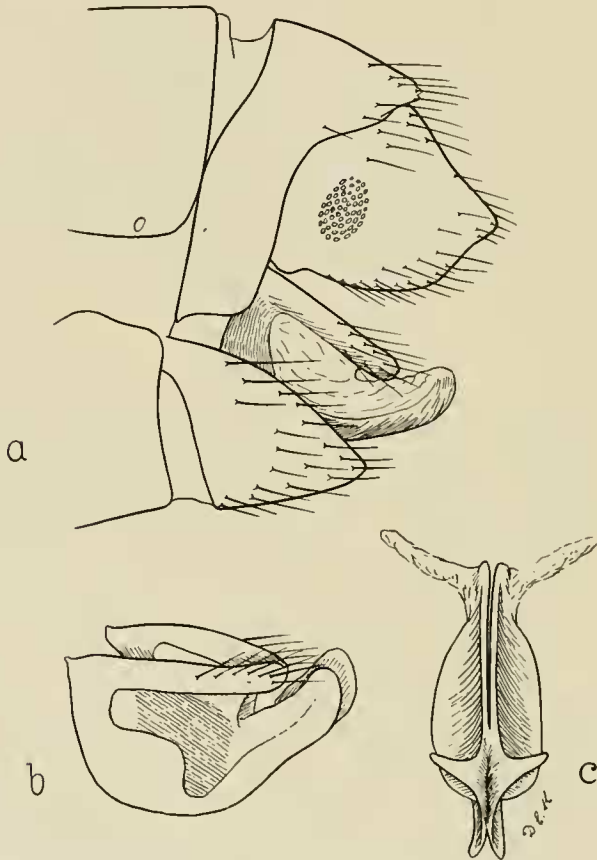
Genotype: *Australysmus lacustris* sp. n.

DISTRIBUTION: Australia (New South Wales).

Australysmus lacustris sp. n.

(Pl. V, fig. 2; text-figs. 27, 28.)

Head luteous, obscured with brown, particularly on the vertex (which carries two piceous spots), below the antennae and on the margins of labrum and clypeus.

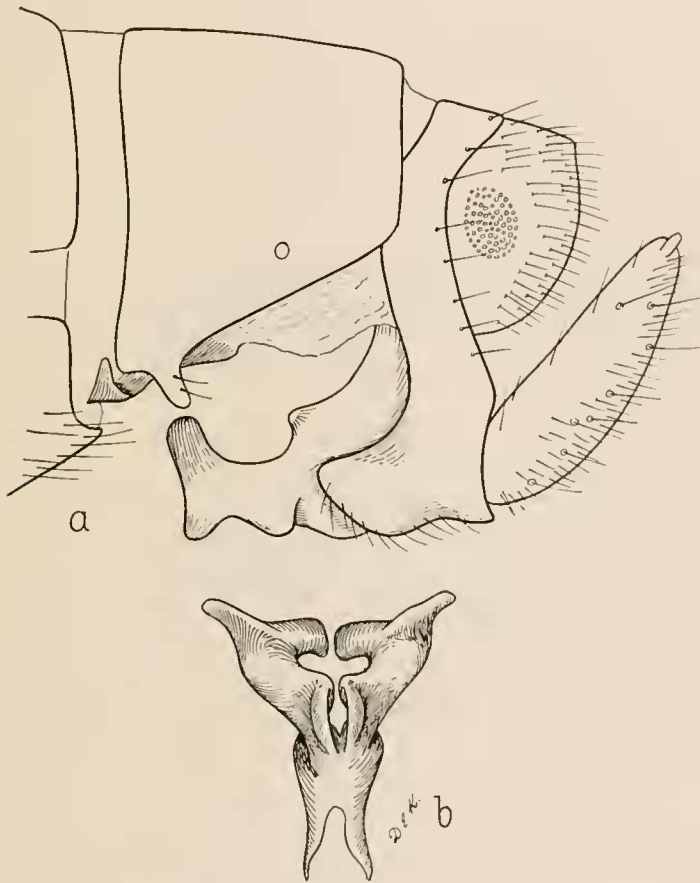


TEXT-FIG. 27.—*Australysmus lacustris* sp. n., ♂ type. *a*, apex of abdomen, lateral; *b*, tenth sternite, lateral; *c*, parameres, dorsal.

Antennae brown, joints faintly annulated with yellowish; palpi brownish. Pronotum about three-quarters as long as broad, anterior angles rounded; luteous, with five brown spots, one median, elongate, and a pair on each side, like exclamation marks; basal margin brown. Meso- and metanota brownish, with obscure yellowish markings. Legs luteous, tibia with piceous spots exteriorly at base, mid-way and apex, posterior femora brownish above, terminal segment of tarsus piceous. Anterior coxae of female not modified. Abdomen brownish.

Wings elongate, apices rounded, not falcate, membrane hyaline, pale yellowish in subcostal area. Anterior wing much speckled with brownish, venation mainly brown. Posterior wing not speckled, venation mainly brown, except for some pale areas in apical half of wing.

♂. Eversible scent-glands between eighth and ninth tergites, apparently shorter than in *Kempynus*. Ninth tergite produced, on either side of the centre



TEXT-FIG. 28.—*A. lacustris* sp. n., ♀ paratype. *a*, apex of abdomen, lateral; *b*, lobe of eighth sternite, ventral.

still further produced in two small, hairy, rounded lobes. Ninth sternite triangularly produced, apex with a broad, shallow notch. Anal plates large, hood-like, apex obtusely triangular from above, from side upper angle slightly produced and rounded. Tenth sternite slender, rib-like, hairy, from above arched, apex truncate, basal branch projecting beyond apex; parameres short, deep, lower margins produced outwards, apices with eversible membranous fingers.

♀. Seventh sternite produced at centre in rounded lobe. Eighth sternite short, quadrate, concave ventrally; apical margin with two deep excisions, separated by a slender acute tongue. Lobe large, bifurcate; from the side, deep, upper margin with a semicircular excision before apex, lower with a shallower

excision separating a rounded lobe from the apex. The latter is dilated and hammer-like, upper angle longer than lower. From beneath, this upper angle is truncate, directed inward, lower more slender and directed outward. A slightly curved ridge on the inner lower margin at the base of each fork of the lobe. Eighth tergite with a downwardly directed finger on the lower margin at base. Ninth tergite from the side slender, sinuous, lower basal angle strongly produced basally in a rounded lobe, projecting on either side of lobe of eighth sternite. Valves of medium length, with small apical styles, lower margin more curved than upper. Anal plates short, upper apical angle obtuse, lower rounded. Accessory glands each with a single short ovate sac at apex.

Length of anterior wing : ♂ 20-22 mm., ♀ 23 mm.

„ posterior wing : ♂ 18-20 mm., ♀ 21 mm.

NEW SOUTH WALES: Mt. Kosciusko, Blue Lake and Club Lake, 1.ii.30, R. J. Tillyard.

Type ♂, paratype ♀ from Blue Lake, paratype ♂ from Club Lake, in British Museum.

This species bears a superficial resemblance to *Eidoporisimus pulchellus* E.-P. The latter may be readily distinguished by the distant origin of the first branch of the radial sector and the position of the fork of the medius in the anterior wing, far beyond the middle.

(MSS. recd. Jan. 3, 1940.)

PLATE I.

Anterior wings of *Stenosmylus* and *Stenolysmus*.

1. *Stenosmylus stenopterus* McL.
2. *S. tenuis* (Walk.).
3. *S. turneri* sp. n., ♀ Type.
4. *Stenolysmus extraneus* (Walk.).

PLATE II.

Anterior wings of *Oedosmylus* spp. ♀.

1. *O. pallidus* (McL.), Type.
2. *O. tasmaniensis* Krüger.
3. *O. latipennis* sp. n., paratype.
4. *O. montanus* sp. n., paratype.

PLATE III.

Wings of *Isostenosmylus* spp. ♂.

1. *I. fusciceps* sp. n., Type.
2. *I. pulverulentus* (Gerst.).

PLATE IV.

Wings of *Isostenosmylus* spp. ♂.

1. *I. fasciatus* sp. n., Type.
2. *I. nigrifrons* sp. n., Type.

PLATE V.

Wings of *Euporismus* and *Australysmus*.

1. *Euporismus albatrox* Tillyard, ♂ Type.
2. *Australysmus lacustris* sp. n., ♀ Paratype.

PLATE VI.

Wings of *Kempynus* spp.

1. *K. incisus* (McL.) ♀.
2. *K. citrinus* (McL.) ♂.
3. *K. citrinus* (McL.) ♂ var.

PLATE VII.

Wings of *Kempynus* spp.

1. *K. latiusculus* (McL.) ♀.
2. *K. longipennis* (Walk.) Type.
3. *K. falcatus* Navás ♀.

PLATE VIII.

Wings of *Euosmylus stellae* (McL.) and varieties.

1. *E. stellae* (McL.).
2. *E. stellae*, var. *connexus* (McL.).
3. *E. stellae*, var. *obliteratus* (McL.).